

AMENDMENTS TO THE CLAIMS:

This listing of claims will replace all prior versions, and listings, of claims in the application:

1. (Currently Amended) A magnetic resonance imaging system comprising:

image range providing means for providing a spatially-fixed imaging spatial range in which three or more regions of an object to be imaged are spatially selected in a predetermined moving direction along which the object is moved;

moving means for continuously moving the object along the predetermined moving direction so that spatial positions of the three or more regions are continuously moved through the imaging spatial range along the moving direction;

exciting means for space-selectively and magnetically exciting a plurality of the three or more regions of an the object, the plurality of regions being located within a predetermined imaging range provided by the magnetic resonance imaging system and a first that is in motion so that each region being is repeatedly excited at intervals a plurality of times while in the predetermined imaging spatial range such that at least one other region is also excited during a period between said at first intervals, wherein the exciting means includes of time during each of which two or more remaining regions are in turn excited at second intervals of time shorter than the first intervals of time;

position-moving means for moving spatial positions of the plurality of excited three or more regions so as synchronously with track a movement of the object in the moving direction;

acquiring means for acquiring echo data from the ~~plurality of three or more~~ excited regions of the object while the object is continuously moved by the moving means; and
processing means for ~~producing image data from~~ processing the acquired echo data ~~acquired by the scanning means~~ to produce image data from the echo data.

2. Cancelled.

3. (Currently Amended) A magnetic resonance imaging system as in claim ~~4~~26, wherein the position-moving ~~means includes~~ unit is equipped with a couch with a tabletop on which the object is laid, the couch having a mechanism for moving the tabletop in a longitudinal direction of the tabletop corresponding to the moving direction.

4. (Currently Amended) The magnetic resonance imaging system as in claim ~~4~~26, wherein the plurality of regions ~~include~~ are multi-slices of the object.

5. (Currently Amended) A magnetic resonance imaging system as in claim 4, wherein the multi-slices have a slice-selective axis direction ~~of the multi-slices corresponds to~~ agreeing with the moving direction of the object on the couch.

6. (Currently Amended) A magnetic resonance imaging system as in claim 4, wherein the multi-slices have a slice-selective axis direction ~~of the multi-slices~~ that is different from the moving direction of the object on the couch.

7. (Currently Amended) A magnetic resonance imaging system as in claim 4, wherein the exciting ~~means includes~~ unit is provided with means for adding another slice to a tail of the multi-slices as a slice belonging to the ~~plurality of three or more~~ multi-slices in the moving

direction in cases when a head slice of the multi-slices in the moving direction goes beyond the imaging spatial range.

8. (Currently Amended) A magnetic resonance imaging system as in claim 4, wherein the position-moving ~~means~~unit is configured to change slice by slice a carrier frequency of a selective-excitation RF pulse to be applied to the multi-slices.

9. (Currently Amended) A magnetic resonance imaging system as in claim 6, wherein the position-moving ~~means~~unit is configured to change the carrier frequency of the selective-excitation RF pulse in compliance with a geometrical relationship between the moving direction of the object and the slice selecting direction.

10. (Currently Amended) A magnetic resonance imaging system as in claim 6, wherein the acquiring ~~means~~unit is configured to acquire the echo data from the selectively excited slices, and

the processing ~~means~~unit includes phase correcting means for correcting a phase of echo data acquired by the acquiring ~~means~~unit on the basis of a geometrical relationship between a position of the object and a direction in which a gradient is applied, and reconstructing ~~means~~unit for reconstructing the echo data of which phases are corrected by the phase correcting ~~means~~unit.

11. (Currently Amended) The magnetic resonance imaging system as claim ~~12~~6, wherein the exciting ~~means~~unit includes means for selectively exciting in sequence the ~~plurality of~~three or more regions by using a preparation pulse whose position applied to the object is moved in response to the movement of the ~~plurality of~~three or more regions.

12. (Currently Amended) A magnetic resonance imaging system as in claim ~~1~~26, wherein the exciting ~~means~~unit includes means for selectively exciting in sequence the ~~plurality of three or more~~ regions by use of a pulse sequence having a gradient pulse to be applied in the moving direction of the object, in which a phase compensation pulse for nulling a gradient moment of a first or second order is added to at least part of the gradient pulse.

13. (Currently Amended) A magnetic resonance imaging system as in claim ~~1~~26, wherein the exciting ~~means~~unit includes means for selectively exciting in sequence the ~~plurality of three or more~~ regions by use of a pulse sequence, formed based on a fast spin echo technique, including a gradient that meets, at least partly a VIPS condition.

14. (Currently Amended) A method for magnetic resonance imaging, which provides a spatially-fixed imaging spatial range in which three or more regions of an object to be imaged are spatially selected in a predetermined moving direction along which the object is moved continuously, spatial positions of the three or more regions being continuously moved through the imaging spatial range along the moving direction, the method comprising:

moving an object continuously;

space-selectively and magnetically exciting a plurality of the three or more regions of the object while the object is moved, the plurality regions being located within a predetermined imaging range and a first each region being repeatedly excited at intervals a plurality of times while in the predetermined imaging spatial range such that at least one other region is also excited during a period between said intervals, wherein at first intervals of time during each of which two or more remaining regions are in turn excited at second intervals of time shorter than

the first intervals of time, spatial positions of the plurality of excited three or more regions
are being moved so as synchronously with track a movement of the object in the moving
direction;

acquiring echo data from the plurality of three or more excited regions of the object; and
producing image data from the acquired echo data.

15. Cancelled.

16. (Currently Amended) A magnetic resonance imaging method as in claim 14,
wherein the plurality of three or more regions ~~include~~are multi-slices of the object.

17. (Currently Amended) A magnetic resonance imaging method as in claim 16,
wherein the multi-slices have a slice-selective axis direction ~~of the multi-slices~~
~~corresponds~~corresponding to the moving direction of the object.

18. (Currently Amended) A magnetic resonance imaging method as in claim 16,
wherein the multi-slices have a slice-selective axis direction ~~of the multi-slices~~that is different
from the moving direction of the object.

19. (Currently Amended) A magnetic resonance imaging method as in claim 16,
wherein the step of exciting includes adding another slice to a tail of the multi-slices as a slice
belonging to the plurality of three or more multi-slices in the moving direction, in cases where a
head slice of the multi-slices in the moving direction goes beyond the imaging spatial range.

20. (Currently Amended) A magnetic resonance imaging system comprising:

a image range providing unit providing a spatially-fixed imaging spatial range in which three or more regions of an object to be imaged are spatially selected in a predetermined moving direction along which the object is moved;

a moving unit, which includes a couch on which the object is laid, driving the couch so that spatial positions of the three or more regions are continuously moved through the imaging spatial range along the moving direction;

~~a couch configured to move an object continuously;~~

~~a controller configured to space-selectively and magnetically excite a plurality of the three or more regions of the object while the object is moved, the plurality of regions being located within a predetermined imaging range and a first so that each region being is repeatedly excited at intervals a plurality of times while in the predetermined imaging spatial range at first intervals of time during each of which two or more remaining regions are in turn excited at second intervals of time shorter than the first intervals of time and also move such that at least one other region is also excited during a period between said intervals wherein spatial positions of the plurality of three or more excited regions are moved so as to synchronously with track a movement of the object in the moving direction;~~

~~a receiver configured to echo data from the plurality of three or more excited regions of the object; and~~

~~a reconstruction unit configured to produce image data from the acquired echo data.~~

21. Cancelled.

22. (Currently Amended) A magnetic resonance imaging system as in claim 20,
wherein the plurality of regions ~~include~~are multi-slices of the object.

23. (Currently Amended) A magnetic resonance imaging system as in claim 22,
wherein the multi-slices have a slice-selective axis direction ~~of the multi-slices corresponds~~
~~to agreeing with~~ the moving direction of the object.

24. (Currently Amended) A magnetic resonance imaging system as in claim 22,
wherein the multi-slices have a slice-selective axis direction ~~of the multi-slices that~~ is different
from the moving direction of the object.

25. (Currently Amended) A magnetic resonance imaging system as in claim 22,
wherein the ~~existing controller~~ includes means for adding another slice to a tail of the multi-slices
as a slice belonging to the ~~plurality of~~three or more multi-slices in the moving direction, in cases
where a head slice of the multi-slices in the moving direction goes beyond the imaging spatial
range.

26 (New) A magnetic resonance imaging system comprising:

an image range providing unit providing a spatially-fixed imaging spatial range in which
three or more regions of an object to be imaged are spatially selected in a predetermined moving
direction along which the object is moved;

a moving unit continuously moving the object along the predetermined moving direction
so that spatial positions of the three or more regions are continuously moved through the imaging
spatial range along the moving direction;

an exciting unit space-selectively and magnetically exciting the three or more regions of the object that is in motion so that each region is repeatedly excited a plurality of times in the imaging spatial range at first intervals of time during each of which two or more remaining regions are in turn excited at second intervals of time shorter than the first intervals of time;

a position-moving unit moving spatial positions of the three or more regions so as to synchronously track a movement of the object in the moving direction;

an acquiring unit acquiring echo data from the three or more excited regions of the object while the object is continuously moved by the moving unit; and

a processing unit processing the acquired echo data to produce image data from the echo data.